PATENT ABSTRACTS OF JAPAN

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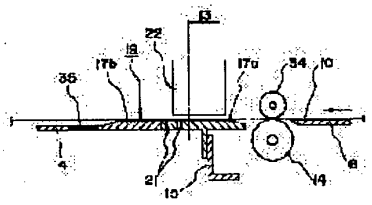
(54) INK JET PRINTER

(57)Abstract:
PROBLEM TO BE SOLVED: To improve printing quality by a method wherein a paper conveyed toward a printing region of a drawing member is restricted not to be floated from a support face of the drawing member.
SOLUTION: A recording head 22 is reciprocated in a direction perpendicular to a conveying direction of a recording medium 10 on a printing region 13 of a drawing member, then the recording head 22 performs recording on the recording medium 10. An air suction device applies a sucking force to a predetermined region including the drawing member and front and rear sections thereof so that the recording medium 10 is attracted to a support face of the drawing member. An irregular guide section 19 having an air suction hole 21 is formed on the drawing member, then the cockling of the recording medium 10 is absorbed by means of the irregular guide section 19 so that paper floating is prevented. The irregular guide section 19 consists of a plurality of parallel and projected stripes 17a, 17b extended in the X axis direction parallel to the conveying direction of the recording medium 10 and a recessed groove adjacent to the projected stripes 17a, 17b. The air suction hole 21 is formed on the top face of the projected stripe 17a.



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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

CLAIMS

[Claim(s)]
[Claim 1] A record medium (10) is pinched with a drive roller (14) and a pressurization roller (34). by rotation of the above-mentioned drive roller (14) A record medium (10) is conveyed from the upstream side of a plot member (12) through a plot member (12) to the paper guide (4) by the side of a lower stream of a river. In the ink jet printer which was made to record on the above-mentioned record medium (10) by the record head (22) on the above-mentioned plot member (12) The suction system (36) made to generate the suction force for pushing a record medium (10) against the back face of the print domain (13) of the above-mentioned plot member (12) is formed. The interior (19) of a concavo-convex proposal which contains the protruding line (17a) (17b) of two or more letters of a parallel in the paper guide (4) which adjoins the above-mentioned plot member (12) or this is prepared. The ink jet printer which the top of the above-mentioned protruding line (17a) is made to carry out opening of the inhalation-of-air hole (21) which is open for free passage to the above-mentioned suction system (36), and is characterized by sticking the inferior surface of tongue of a record medium (10) on the top of the above-mentioned protruding line (17a) (17b) according to the inhalation-of-air force of the above-mentioned suction system (36).

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] If this invention is further specified about large-sized raster printers (plotter), such as an ink-jet type used as output equipment of CAD computer, it relates to the printer equipped with the paper float prevention device in which the record medium was made not to lose touch with a form back face in the printing section.
[0002]
[Description of the Prior Art] In the ink jet printer of ****, the influence of deformation (henceforth a cock ring) of the shape of the wrinkling generated when ink is breathed out by the record medium, or flapping must be eliminated as much as possible, and the spacing of a record medium and a record head must be held uniformly. Moreover, you have to prevent the paper float turned in the orientation of a head from on a platen also to the record medium which has generated curl with moisture etc. from the first. In order to solve such a trouble, two or more concavities and two or more heightss are prepared in the upper part of a platen, a paper-bail plate is arranged so that further two or more concavities may be contacted, and the ink-jet recording device which prepared the salient in the position corresponding to two or more concavities from the paper-bail plate is indicated by JP,9-48161,A. Moreover, the printer style which prepared the rib in the top of a platen is indicated by JP,7-256955,A as a cure against a cock ring.
[0003]
[Problem(s) to be Solved by the Invention] A heights and a rib are prepared in a platen, and in order to locate the fraction turned downward [of a form] in the concavity formed between heightss or between ribs and to prevent a paper float, it is necessary to push the inferior surface of tongue of a form against a heights or a rib. Conventionally, in front of the printing section, equipment carries out the bowl music of the form by the form guide in front of pushing a salient of a paper-bail plate against a form ****, or the printing section, is this pressure and has pushed the form against the rib. However, since a salient of a paper-bail plate cannot be arranged near the printing area, it is near the printing section and cannot push a form against a heights. Moreover, the technique of pushing a form against a rib with the bowl music of a form was not able to acquire sufficient forcing force. this invention aims at solving the above-mentioned trouble.

[0004]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention pinches a record medium (10) with a drive roller (14) and a pressurization roller (34). by rotation of the above-mentioned drive roller (14) A record medium (10) is conveyed from the upstream side of a plot member (12) through a plot member (12) to the paper guide (4) by the side of a lower stream of a river. In the ink jet printer which was made to record on the above-mentioned record medium (10) by the record head (22) on the above-mentioned plot member (12) The suction system (36) made to generate the suction force for pushing a record medium (10) against the back face of the print domain (13) of the above-mentioned plot member (12) is formed. The interior (19) of a concavo-convex proposal which contains the protruding line (17a) (17b) of two or more letters of a parallel in the paper guide (4) which adjoins the above-mentioned plot member (12) or this is prepared. The top of the above-mentioned protruding line (17a) is made to carry out opening of the inhalation-of-air hole (21) which is open for free passage to the above-mentioned suction system (36), and it is made to stick the inferior surface of tongue of a record medium (10) on the top of the above-mentioned protruding line (17a) (17b) according to the inhalation-of-air force of the above-mentioned suction system (36).
[0005]
[Embodiments of the Invention] The gestalt of operation of this invention is explained in detail with reference to the appended drawing below. In drawing 3 , (2) is the platen of an ink-jet formula large-sized printer (plotter), and it is equipped with the pars-anterior paper guide (4), and a plot member (12) and a posterior-part paper guide (6). The above-mentioned platen (2) is supported by **** (8). The above-mentioned paper guide (4) and (6) have breadth larger than the width of face of a form, and they are arranged so that a form (10), i.e., a record medium, may be ahead guided from the back of a platen (2). A plot member (12) is located in the center of abbreviation of a platen (2), and it is constituted so that a printing may be performed on the top of the print domain (13) of this plot member (12), and referring to [(referring to the drawing 2)].
[0006] The above-mentioned plot member (12) is being fixed to the base (16) through the bracket (15). The protruding line (17a) prolonged in the conveyance orientation of a form in the above-mentioned plot member (12) is fixed to two or more parallels. A protruding line (17b) is fixed also to the top of the pars-anterior paper guide (4) which adjoins the above-mentioned plot member (12) by two or more parallels so that the above-mentioned protruding line (17a) may be followed. by the above-mentioned protruding line (17a) (17b) The interior (19) of a concavo-convex proposal for paper float prevention is formed in the predetermined domain of the fraction which adjoins the top of a plot member (12), and the plot member (12) of a pars-anterior paper guide (4). In the above-mentioned protruding line (17a) and an order section paper guide (4), and (6), two or more inhalation-of-air holes (21) for adsorption are drilled, and it is constituted so that the vacuum force over a form may act on the predetermined domain (23) before and behind the print domain (13) of a plot member (12). The inhalation-of-air hole (17a) drilled in each above-mentioned protruding line (17a) is arranged in the position shifted a little in the orientation of a lower stream of a river from the print domain (13).
[0007] A long picture-like drive roller (14) is arranged in the opening between the opposite sections of the above-mentioned plot member (12) and the above-mentioned posterior-part paper guide (6), and this drive roller (14) is attached in the driving shaft (20). A driving shaft (20) is supported possible [rotation] by the axial electrode holder (18) fixed to the base (16) in a platen (2), and is connected with X motor controlled by the controller through a power transmission device. (22) is the record head of an ink-jet formula, and is attached in the support (26) attached in the Y-axis guide rail (24) prolonged along with a space perpendicular direction, i.e., Y-axis, among drawing 3 free [a move]. The cutter head (30) which holds a cutter (28) possible [rise and fall] is attached in the above-mentioned support (26).

[0008] The above-mentioned support (26) is connected with Y motor controlled by the controller possible [reciprocation] along with the above-mentioned Y-axis guide rail (24). The above-mentioned Y-axis guide rail (24) is constructed on a platen (2), and two or more roller electrode holders (32) are supported by this Y-axis guide rail (24) possible rise and fall] through the rise-and-fall guide (illustration ellipsis). The pressurization roller (34) is supported to revolve by each of the above-mentioned roller electrode holder (32) free [rotation]. The above-mentioned pressurization roller (34) is ****ed on the front face of a drive roller (14), and it is constituted by the spring force of acting on a roller electrode holder (32) so that the record medium (10) arranged on a platen (2) may be pinched according to the interaction with the above-mentioned drive roller (14). (35) is a cutter matte for enforcing a form cut, it is arranged in parallel with a plot member (12), and this cutter matte (35) is being fixed to the pars-anterior paper guide (4). (36) is vacuum (inhalation of air) equipment, and it is constituted so that the vacuum force can be made to act on the inferior surface of tongue of the record medium (10) on a plot member (12) and a platen (2) through an inhalation-of-air hole (21) over a predetermined domain (23) with this equipment.

[0009] Next, an operation of this operation gestalt is explained. Record media (10), such as the drawer section of the roll sheet by which the installation set was carried out on the posterior-part paper guide (6), or a single sheet, are pinched with a drive roller (14) and a pressurization roller (34), and counterclockwise intermittent rotation conveys a plot member (12) top leftward among drawing 1 among the drawing 1 of a drive roller (14), receiving the vacuum force downward. Absorption of ink of the record medium (10) on a plot member (12) generates the elongation by intumescence by the concavity inside a concavo-convex proposal (19). since the pressure welding of the record medium (10) is carried out to the top of a protruding line (17a) by the inhalation-of-air hole (21) of a protruding line (17a) at this time -- lenticulating (cock ring) -- since it generates downward certainly and the bowl pars convoluta lobuli corticalis renis by the cock ring is located in a concavity, a record medium (10) does not lose touch with a plot member (12) in the orientation of a record head (22)

[0010] ink **** which a record head (22) carries out the both-way move of the record-medium (10) top stuck to the form back face inside [of a plot member (12)] a concavo-convex proposal (19) at Y shaft orientations, and is breathed out from a record head (22) -- a record medium (10) -- a printing -- illustrating is performed Since the inhalation-of-air hole (21) has shifted in the orientation of a lower stream of a river from the print domain (13) as shown in drawing 2 even if a record head (22) moves to the side edge section (edge) of a record medium (10) at the time of a print, ink **** is not absorbed by the inhalation-of-air hole (21). The record medium (10) after a printing is conveyed on a pars-anterior paper guide (4) through a cutter matte (35), receiving the vacuum force. When a record medium (10) is a roll sheet, the cut position of a record medium (10) is positioned on a cutter matte after record of one frame, and the position of a record medium (10) is cut in accordance with Y shaft orientations by the cutter (28).

[0011]

[Effect of the Invention] Since this invention carried out opening of the inhalation-of-air hole for adsorption to the protruding line and made the top of a protruding line generate the vacuum force like ****, it can prevent the relief of a record medium efficiently. Furthermore, since the intumescence fraction of the record medium which absorbed ink was adsorbed inside the concavo-convex proposal by the vacuum force in which it does not contact, the spacing between a record head and a record medium can be set constant, and it can record on high definition.

Field

[The technical field to which invention belongs] If this invention is further specified about large-sized raster printers (plotter), such as an ink-jet type used as output equipment of CAD computer, it relates to the printer equipped with the paper float prevention device in which the record medium was made not to lose touch with a form back face in the printing section.

Technique

[Description of the Prior Art] In the ink jet printer of ****, the influence of deformation (henceforth a cock ring) of the shape of the wrinkling generated when ink is breathed out by the record medium, or flapping must be eliminated as much as possible, and the spacing of a record medium and a record head must be held uniformly. Moreover, you have to prevent the paper float turned in the orientation of a head from on a platen also to the record medium which has generated curl with moisture etc. from the first. In order to solve such a trouble, two or more concavities and two or more heightss are prepared in the upper part of a platen, a paper-bail plate is arranged so that further two or more concavities may be contacted, and the ink-jet recording device which prepared the salient in the position corresponding to two or more concavities from the paper-bail plate is indicated by JP,9-48161,A. Moreover, the printer style which prepared the rib in the top of a platen is indicated by JP,7-256955,A as a cure against a cock ring.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] A heights and a rib are prepared in a platen, and in order to locate the fraction turned downward [of a form] in the concavity formed between heightss or between ribs and to prevent a paper float, it is necessary to push the inferior surface of tongue of a form against a heights or a rib. Conventionally, in front of the printing section, equipment carries out the bowl music of the form by the form guide in front of pushing a salient of a paper-bail plate against a form ****, or the printing section, is this pressure and has pushed the form against the rib. However, since a salient of a paper-bail plate cannot be arranged near the printing area, it is near the printing section and cannot push a form against a heights. Moreover, the technique of pushing a form against a rib with the bowl music of a form was not able to acquire sufficient forcing force. this invention aims at solving the above-mentioned trouble.

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention pinches a record medium (10) with a drive roller (14) and a pressurization roller (34). by rotation of the above-mentioned drive roller (14) A record medium (10) is conveyed from the upstream side of a plot member (12) through a plot member (12) to the paper guide (4) by the side of a lower stream of a river. In the ink jet printer which was made to record on the above-mentioned record medium (10) by the record head (22) on the above-mentioned plot member (12) The suction system (36) made to generate the suction force for pushing a record medium (10) against the back face of the print domain (13) of the above-mentioned plot member (12) is formed. The interior (19) of a concavo-convex proposal which contains the protruding line (17a) (17b) of two or more letters of a parallel in the paper guide (4) which adjoins the above-mentioned plot member (12) or this is prepared. The top of the above-mentioned protruding line (17a) is made to carry out opening of the inhalation-of-air hole (21) which is open for free passage to the above-mentioned suction system (36), and it is made to stick the inferior surface of tongue of a record medium (10) on the top of the above-mentioned protruding line (17a) (17b) according to the inhalation-of-air force of the above-mentioned suction system (36).

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When a record medium (10) is a roll sheet, the cut position of a record medium (10) is positioned on a cutter matte after record of one frame, and the position of a record medium (10) is cut in accordance with Y shaft orientations by the cutter (28).

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is side face sectional drawing of the principal part of the ink jet printer which is this invention.

[Drawing 2] It is an external view inside [of an ink jet printer] a concavo-convex proposal.

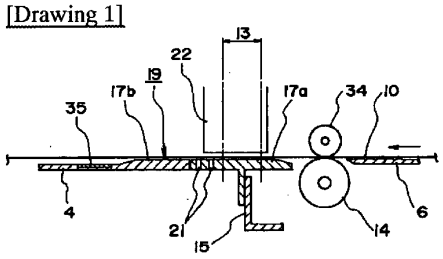
[Drawing 3] It is side face sectional drawing of an ink jet printer.

[Description of Notations]

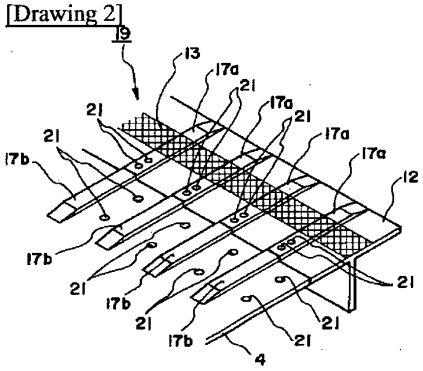
2 Platen
4 Pars-Anterior Paper Guide
6 Posterior-Part Paper Guide
8 ****
10 Record Medium
12 Plot Member
13 Print Domain
14 Drive Roller
15 Bracket
16 Base
17a Protruding line
17b Protruding line
18 Axial Electrode Holder
19 Interior of Concavo-convex Proposal
20 Driving Shaft
21 Inhalation-of-Air Hole
22 Record Head
23 Domain
24 Y-axis Guide Rail
26 Support
28 Cutter
30 Cutter Head
32 Roller Head
34 Pressurization Roller
35 Cutter Matte
36 Suction System

DRAWINGS

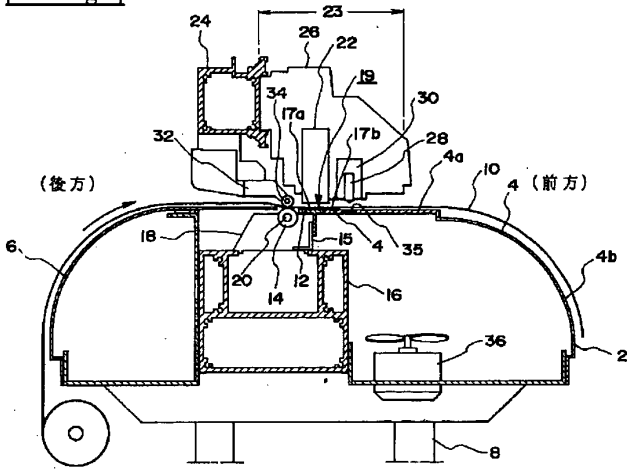
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]